

**The Impact of Financial Covenants in Private Loan Contracts  
on Classification Shifting**

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### **ABSTRACT**

This study examines whether firms with private loan contracts that contain debt covenants based on earnings before interest, taxes, depreciation and amortization (EBITDA) are more likely to misclassify core expenses as special items (i.e., classification shift). Misclassifying core expenses as income-decreasing special items allows the firm to increase EBITDA and thereby potentially avoid debt covenant violations. After controlling for the endogenous choice of including a financial covenant in loan contracts, we show that classification shifting is more likely to occur (1) when loan contracts include at least one EBITDA-related covenant, (2) as the number or proportion of EBITDA-related covenants increases, and (3) when the firm is close to technical violation of at least one EBITDA-related covenant. In contrast, we do not find evidence that non-EBITDA-related financial covenants (i.e., balance sheet covenants) impact expense classification shifting. While prior research on classification shifting primarily focuses on equity market incentives (e.g., meeting analysts' earnings forecasts), our study extends this research to private loan contracts to highlight that creditors also affect classification shifting.

**KEYWORDS:** Classification shifting; debt contracting; private loans; EBITDA; special items.

# **The Impact of Financial Covenants in Private Loan Contracts on Classification Shifting**

## **I. INTRODUCTION**

Private loan contracts commonly include covenants (or restrictions) that protect the lender from poor decisions by the borrower. These covenants often are based on financial ratios that require some minimum core earnings performance. For example, Demerjian and Owens (2014) categorize all financial covenants into fifteen categories and report that seven of them are built upon EBIT or EBITDA (hereafter, EBITDA-related covenants).<sup>1</sup> We investigate whether loan contracts that include EBITDA-related covenants affect managers' misclassification of core expenses to income-decreasing special items. By shifting core expenses to income-decreasing special items, managers increase EBITDA and move each of these ratios further from violation.

Research on classification shifting has primarily been conducted from an equity market perspective (McVay 2006; Fan, Barua, Cready, and Thomas 2010; Athanasakou, Strong, and Walker 2011; Fan and Liu 2015). By shifting core expenses to income-decreasing special items, managers convey stronger operating performance, are more likely to meet analysts' forecasts, and signal more persistent future earnings, all of which should lead to higher equity values. Different from these prior studies, we investigate classification shifting motivated by credit market incentives.

However, there is debate in the literature on whether debt covenant violations are costly to the borrower. If violations are not costly, then managers may not be motivated to classification

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<sup>1</sup> The EBITDA-related covenants include (1) minimal interest coverage, (2) minimal cash interest coverage, (3) minimal debt service coverage, (4) minimal fixed charge coverage, (5) maximal debt to EBITDA ratio, (6) maximal senior debt to EBITDA ratio, and (7) minimal EBITDA. For our sample period from 1989 to 2013, we show that 61.2% of the firm-quarter observations have at least one of the seven EBITDA-related covenants in outstanding loans. Furthermore, approximately 90% of the firm-quarters with at least one financial covenant in the loan contract also have at least one EBITDA-related covenant.

shift to avoid violating EBITDA-related covenants. Some studies suggest little costs imposed on debt covenant violations (e.g., Chen and Wei 1993; Gopalakrishnan and Parkash 1995; Dichev and Skinner 2002; Roberts and Sufi 2009a), while others find a higher cost of renegotiated interest rates following a debt covenant violation (e.g., Beneish and Press 1993, 1995; Chen and Wei 1993; Smith 1993; Sweeney 1994; Dichev and Skinner 2002; Sufi 2009; DeAngelo, DeAngelo, and Wruck 2002). Other costly outcomes associated with violations include decline in capital spending (Chava and Roberts 2008), accelerated renegotiations (Roberts and Sufi 2009b), introduction of capital spending restrictions (Nini, Smith, and Sufi 2009), and reduction in shareholder payouts and increase in CEO turnover (Nini, Smith, and Sufi 2012). In our study, finding evidence of classification shifting to avoid violating EBITDA-related covenants would be consistent with managers believing (1) covenant violations are costly and (2) classification shifting can be used to improve EBITDA without being detected by lenders.<sup>2</sup>

Managers may also be motivated to classification shift because it potentially represents a lower-cost tool to change users' perceptions. Unlike accrual and real activities management, classification shifting has no effect on the bottom-line income. Auditors often focus on the fair presentation of bottom-line income (Nelson, Elliott, and Tarpley 2002), and therefore classification shifting is likely to attract less scrutiny. To the extent GAAP is violated using accrual management, auditors face the issue of requiring the firm to restate or else face increased litigation risk. In addition, any management upward of accruals in the current period must reverse downward in some future period. Real activities manipulation may also be costly to

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<sup>2</sup> Similar conclusions would be made for prior studies that show managers are willing to engage in accrual management to avoid covenant violations (DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Sweeney 1994; Franz, HassabElnaby, and Lobo 2014). The results of these studies are consistent with managers believing (1) covenant violations are costly and (2) accrual management will not be detected by lenders. These conclusions are also consistent with the literature on classification shifting, which suggests that others (e.g., investors) are not fully aware of this management reporting technique.

execute and could involve suboptimal operating decisions, both of which are likely to lower future earnings. Thus, expense misclassification could potentially be a more desirable approach to change lenders' perceptions of firm performance. We build on prior studies that examine accrual and real activities manipulation to test an alternative means by which financial covenant violations may be avoided – classification shifting.<sup>3</sup>

Controlling for the endogenous choice of having a financial covenant in loan contracts, we find results consistent with expectations. We show that core expense misclassification is more prominent (1) when loan contracts include at least one EBITDA-related covenant, (2) as the number or proportion of EBITDA-related covenants increases, and (3) when the firm is close to technical violation of at least one EBITDA-related covenant. By shifting core expenses to income-decreasing special items, managers are able to move EBITDA-related ratios further away from violation. In contrast, we do not find evidence that non-EBITDA-related financial covenants impact core expense misclassification. Non-EBITDA financial covenants include balance sheet amounts (e.g., minimum current ratio) and, by definition, do not depend on the level of core performance. Therefore, managers are not expected to use expense shifting to manipulate these ratios. Thus, financial covenants *in general* do not motivate classification shifting. Instead, our evidence highlights the impact of EBITDA-related covenants on expense classification shifting.

We also find that the extent of classification shifting is greater for firms with weaker cash flows. Borrowers with reduced cash flows (i.e., limited internal funding) are more reliant on

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<sup>3</sup> While we argue that classification shifting is a relatively less costly earnings management tool, we do not suggest that it always occurs before managers resort to accrual or real activities management. Managers often face a portfolio of choices for managing earnings (accruals, real activities, and classification shifting), and it is possible that firms engage in more than one at a time. Prior studies offer some evidence on the use of accruals versus real activities management (e.g., Cohen et al. 2008; Cohen and Zarowin 2010; and Zang 2012) and classification shifting versus real activities management (Fan and Liu 2015) in non-debt-contracting settings.

external funding, increasing the cost of debt covenant violations in private loan contracts. These borrowers therefore face greater incentives to shift core expenses to avoid EBITDA-related covenant violations. Along the same line, we find increased classification shifting when firms' abnormal stock returns in the fiscal quarter prior to the release of their quarterly financial statements are low. Those firms with lower returns are more likely to have higher credit risk (e.g., Dichev 1998; Campbell, Hilscher, and Szelagyi 2008) and are expected to have higher costs of violating covenants. Thus, their managers have greater incentives to classification shift to improve reported EBITDA.

Our study contributes to the literature in at least three important ways. First, we extend prior classification shifting literature by documenting an additional incentive from the credit market perspective. Prior studies in this literature are motivated primarily by equity market incentives from a valuation perspective. Understanding credit markets is also important. Creditors are an important source of external financing. In 2013, \$2,157 billion in private loan contracts were issued, an increase of 40% compared to 2012.<sup>4</sup> This amount compares to the issuance of only \$1,414 billion in new corporate bonds and only \$311 billion in new stocks in 2013.<sup>5</sup> Consequently, private loans contracted on accounting numbers play an important role in overall financing policy. To the extent that lenders often emphasize borrowers' core profitability by including EBITDA-related covenants as a monitoring mechanism in loan contracts, managers are encouraged to manage core earnings through expense misclassification. This study provides empirical evidence on this issue in the private loan setting.

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<sup>4</sup> The amount of private loan contracts is determined using total volume of deal activity on U.S. loans from Bloomberg (<http://www.bloomberg.com/professional/content/uploads/sites/4/2015/02/GLOBAL-LEGAL-FINAL-asiapac.pdf>).

<sup>5</sup> Securities Industry and Financial Markets Association (SIFMA): U.S. Bond Market Issuance and Outstanding; U.S. Equity Stats. Available at: <http://www.sifma.org/research/statistics.aspx>.

Second, we add to the loan contracting literature in general and extend prior investigation of earnings management near debt covenant violation in particular. We provide evidence to the debate on whether debt covenant violations are costly and therefore motivate managers to avoid them by managing earnings. Our evidence suggests that classification shifting exists, and it is more prominent when violation is likely more costly. These results are consistent with managers believing they derive some benefit (or avoid some cost) by engaging in classification shifting to avoid covenant violation. We conclude that, in addition to accrual and real activities management that affect bottom-line net income, borrowers engage in relatively less costly classification shifting to alter lenders' perception. This opportunistic reporting practice is likely relevant to decisions of lenders, auditors, regulators, and other stakeholders in credit markets. The amount of misclassified core expenses and the extent of classification shifting are economically and statistically significant. In addition, by documenting the existence of classification shifting in our loan contract setting, we provide a baseline study for future research on manager's portfolio of earnings management techniques.

Finally, our study lends additional credibility to the classification shifting literature. This literature is relatively new and alternative explanations for the empirical findings have been conjectured (McVay 2006). While prior studies attempt to carefully address these issues, additional research is needed to further reinforce or refute conclusions. We identify a setting in which users explicitly state the financial ratios on which their decisions are based. Some private loan contracts specifically express EBITDA-related covenants, while others do not. We find evidence of increased classification shifting only for those contracts that are based on EBITDA-related covenants. In addition, we find stronger evidence of classification shifting for firms that are closer to violation. Finding evidence of classification shifting in settings where classification

shifting is more likely to occur offers additional confidence for the approaches developed in the literature.

In the next section, we discuss the background, synthesize relevant literature, and develop hypotheses. In Section III, we present the model of expected core earnings and measurement of classification shifting. Data and sample are introduced in Section IV. In Section V, we discuss the research design and results for hypotheses testing. We provide additional analyses in Section VI. Section VII concludes the study.

## **II. BACKGROUND, LITERATURE, AND HYPOTHESES**

### **Core Expense Misclassification**

The classification shifting literature hypothesizes that managers misclassify core expenses as income-decreasing special items to inflate reported core earnings (McVay 2006; Fan et al. 2010; Haw et al. 2011; Fan and Liu 2015). For example, McVay (2006) finds that managers are more likely to classification shift to just meet or beat the analysts' forecast. By shifting core expenses to income-decreasing special items, managers can report higher core earnings, which often are more in line with the analysts' forecasts (Bradshaw and Sloan 2002; Gu and Chen 2004). Managers are motivated to engage in this reporting behavior because meeting or beating analysts' forecasts has favorable consequences for equity valuation (Bartov, Givoly, and Hayn 2002; Kasznik and McNichols 2002).<sup>6</sup> Even beyond meeting analysts' forecasts, managers have equity incentives to boost core performance. Core earnings are typically perceived by investors to be more persistent than are non-core earnings, and core earnings therefore have a higher valuation multiple (Lipe 1986; Fairfield, Sweeney, Yohn 1996).

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<sup>6</sup> As with all other earnings management techniques, the maintained assumption of classification shifting is that, users, such as investors and lenders, are not fully aware of managers' opportunistic reporting practice.



By inflating core performance through expense shifting, managers potentially increase the equity value of their firms.

Beyond the analyst forecast benchmark, Fan et al. (2010) show that managers are also motivated to misclassify core expenses as income-decreasing special items to avoid reporting losses or decreases in operating income. Furthermore, this benchmark-beating behavior is exacerbated in the fourth fiscal quarter, likely because valuation consequences following missing or meeting fourth quarter benchmarks are more pronounced.

More recently, Fan and Liu (2015) separately examine the two primary components of core expenses – cost of goods sold (COGS) and selling, general and administrative expenses (SGA). They determine whether COGS versus SGA misclassification is driven by different benchmark-beating incentives. They find that managers are more likely to misclassify COGS to report a small increase in the gross margin ratio over four quarters ago. Managers are more likely to misclassify both COGS and SGA when core earnings are just above zero or show a small increase over core earnings of four quarters ago.

In addition, prior studies examine other various factors that affect the degree of core expense misclassification. For example, using the market to book value of equity to proxy for investors' growth expectations, McVay (2006) provides evidence that the increased classification shifting to meet the analyst forecast is particularly pronounced in high growth firms. Further, Fan et al. (2010) and Abernathy, Beyer, and Rapley (2014) conclude that classification shifting is more likely when other earnings management opportunities (accrual and real activities manipulation) are constrained.

In sum, prior studies find evidence of classification shifting in a number of settings related to stock market-based incentives to inflate core performance. We build upon this

literature by extending tests of classification shifting to the debt contracting perspective in the private loan market.

### **Debt Covenants and Earnings Management**

When a borrower violates a covenant in a debt contract, the lender typically has the right to impose costs on the borrower. These costs could include accelerating the loan repayment schedule, restricting the availability of credit, increasing collateral, or renegotiating a higher cost of debt. However, there is a debate in the literature of whether debt covenant violations are in fact costly to the borrower. Some studies suggest little costs imposed on borrowers for debt covenant violations (e.g., Chen and Wei 1993; Gopalakrishnan and Parkash 1995; Dichev and Skinner 2002; Roberts and Sufi 2009a). For example, Dichev and Skinner (2002) document that private lenders set debt covenants tightly and use them as “trip wires” for borrowers, that technical violations occur relatively often, and that violations are not necessarily associated with financial distress. They show that violations rarely lead to default payment or bankruptcy. Gopalakrishnan and Parkash (1995) find that 93% of the lenders they surveyed do not perceive technical defaults on accounting-based covenants as serious, and a waiver of the violation is the most likely lender response. Chen and Wei (1993) find that about 48% of covenant violations are waived by lenders. Similarly, Roberts and Sufi (2009a) show that many waivers have no lender-imposed costs.

However, many studies document higher renegotiated interest rates following a debt covenant violation (e.g., Beneish and Press 1993, 1995; Chen and Wei 1993; Smith 1993; Sweeney 1994; Dichev and Skinner 2002; Sufi 2009; DeAngelo, DeAngelo, and Wruck 2002). In addition, Beneish and Press (1993, 1995) find that the costs of such violations can be

substantial for the firms involved, and common share prices respond negatively to the reports of violations. These studies reveal that a debt covenant violation is an important event and is viewed with concern by managers and shareholders. Butt (2015) concludes that violating at least one debt covenant increases the cost of debt by 40-61 basis points, and a violation occurring in the quarter preceding a bond issue increases the cost of debt by 88-105 basis points.

Other costly outcomes associated with violations include decline in capital spending (Chava and Roberts 2008), accelerated renegotiations (Roberts and Sufi 2009b), introduction of capital spending restrictions (Nini et al. 2009), and reduction in shareholder payouts and increase in CEO turnover (Nini et al. 2012). Dyreng (2009) addresses the cost of covenant violation by measuring the tax cost. He shows that firms are willing to incur tax cost to avoid violation of private debt covenants. The incremental tax cost is incurred because managing earnings upward to avoid a violation also increases taxable income. He finds that the incremental tax cost for restrictive debt covenants are equivalent to increasing the cost of debt financing between 12.92 and 22.72 basis points. He concludes that tax costs provide a lower bound on the cost of debt covenant violation in private credit agreements. Gao, Khan, and Tan (2015) provide an interesting study on third-party costs of technical defaults. Even where there is low lender-imposed cost, firms can still incur significant costs from violation through higher audit fees, stock return volatility, and bid-ask spreads.

In summary, several studies conclude from many perspectives that debt covenant violations are costly, giving managers an incentive to avoid technical default. Consistent with this incentive, prior research provides evidence that managers manipulate accruals when loans are based on financial covenants, and this reporting behavior increases with nearness to covenant violation (DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Sweeney 1994). In addition,

Kim, Lisic, and Pevzner (2011) find that real earnings management is positively associated with the closeness to violation of several types of debt covenants (net worth, debt-to-EBITDA ratio, interest coverage ratio, and fixed coverage ratio). More recently, Franz et al. (2014) show that firms with outstanding loans close to the violation or in technical default of the current ratio covenant engage in both accrual manipulation and real activities management.

Different from prior studies on the relation between proximity to covenant violation and bottom-line earnings management, we focus on core earnings manipulation through expense shifting. Misclassifying core expenses as income-decreasing special items offers a relatively low-cost tool. Shifting core expenses to special items increases reported EBITDA without affecting bottom-line net income and moves the firm further from the EBITDA-related covenant threshold.

## **Hypotheses**

Agency theory predicts that agents when left unmonitored will expropriate capital from principals for their own self-interest (Jensen and Meckling 1976). According to Holthausen and Leftwich (1983) and Leftwich (1983), one way for the principal to reduce the costs of monitoring and agency conflict is to write contracts using numbers based on generally accepted accounting principles (GAAP). In practice, we observe that lenders do include GAAP-based financial covenants in their private loan contracts as a mechanism to monitor managers' actions. As evidence of the prevalence of including financial covenants as a monitoring tool, borrower firm-quarters in our sample from 1989 to 2013 have an average of 3.22 financial covenants in their outstanding loan contracts, and approximately 2.02 are EBITDA-related.

While the inclusion of GAAP-based financial covenants in loan contracts is intended to

allow better monitoring, contracting theory predicts a relation between the existence of debt covenants and accounting choice (Watts and Zimmerman 1986). More broadly, whenever capital providers contract on accounting numbers, managers have the incentive to manipulate reported numbers to achieve personal goals. Several studies (discussed previously) document that firms are willing to manage accruals and real activities to avoid covenant violations. Their findings suggest that these firms derive some benefit (or avoid some cost) by manipulating reported accounting numbers.

We conjecture that classification shifting is an especially appealing earnings management tool for managers of firms with EBITDA-related covenants in outstanding loans. As managers shift additional core expenses to income-decreasing special items, reported EBITDA increases and moves further from covenant thresholds. The misclassification from core expenses to income-decreasing special items does not involve accruals manipulation nor does it alter real operating decisions. Accruals manipulated upward will ultimately reverse in a future period, and real activities management may involve suboptimal operating decisions. Furthermore, because classification shifting does not change bottom-line net income, it is less likely to invite additional scrutiny from other external monitors (e.g., auditors). Therefore, classification shifting helps to improve reported EBITDA at a relatively low cost. Our first hypothesis is as follows:

**Hypothesis 1:** *Managers of borrowing firms are more likely to misclassify core expenses as special items when lenders use EBITDA-related covenants.*

Prior research shows that managers are more willing to manage accruals and real activities as their firms' performance nears debt covenant violation (DeFond and Jiambalvo 1994; Sweeney 1994; Dichev and Skinner 2002; Kim, Lisic, and Pevzner 2011; Franz et al. 2014). We expect that the incentive for borrowing firm managers to misclassify core expenses also increases when firms are close to violation. We predict the following:

**Hypothesis 2:** *Managers of borrowing firms are more likely to misclassify core expenses as special items when EBITDA-related covenants are close to violation.*

One advantage of our setting is that debt covenants are directly observable by researchers. We have a sample of private loan contracts for which lenders' decisions are specifically stated in terms of EBITDA-related covenants, and a sample for which they are not. Classification shifting has the direct effect of increasing EBITDA but has no effect on other types of covenants (e.g., balance sheet ratios). Therefore, we expect classification shifting, if occurring, to be more detectable for loan contracts that include EBITDA-related covenants. In many other research settings (e.g., equity markets), the terms on which users base their decisions are not directly observable by the researcher and must therefore be inferred.

### III. MEASURING CLASSIFICATION SHIFTING

Consistent with prior classification shifting research (McVay 2006; Fan et al. 2010; Haw et al. 2011), we expect that classification shifting will be evidenced by a positive relation between *unexpected* core earnings and income-decreasing special items. In other words, as core expenses are shifted, unexpected core earnings will be higher and the amount of income-decreasing special items will be higher. To estimate *expected* core earnings, we adopt the following model from Fan et al. (2010):

$$CE_{i,q} = \alpha_0 + \alpha_1 * CE_{i,q-1} + \alpha_2 * CE_{i,q-4} + \alpha_3 * ATO_{i,q} + \alpha_4 * ACCR_{i,q-1} + \alpha_5 * ACCR_{i,q-4} + \alpha_6 * \Delta SALE_{i,q} + \alpha_7 * NEG\_ \Delta SALE_{i,q} + \alpha_8 * RET_{i,q} + \alpha_9 * RET_{i,q-1} + \mu_{i,q} \quad (1)$$

Variable definitions are provided in Table 1. Model (1) is estimated with industry-year-quarter regressions, where industry classifications are based on two-digit SIC codes. The residual from Models (1) in quarter  $q$  is used as the proxy for the unexpected core earnings for firm  $i$  ( $UE\_CE_{i,q}$ ).

In Model (1), core earnings,  $CE_q$ , is sales minus cost of goods sold and selling, general and administrative expense, scaled by sales.<sup>7</sup> Following Fan et al. (2010), we include core earnings from the last quarter ( $CE_{q-1}$ ) and four quarters ago ( $CE_{q-4}$ ) to control for the firms' current economic environment. Core earnings four quarters ago is included because quarterly earnings exhibit a seasonal pattern for many firms, such that earnings of the same quarter one year ago may provide an appropriate control for current performance. Asset turnover ( $ATO$ ) tends to be inversely related to profit margins (Nissim and Penman 2001) and the definition of core earnings closely parallels profit margins. Thus, we follow Fan et al. (2010) and include  $ATO$  in the model. Sloan (1996) finds that accrual levels are an explanatory variable for future performance, so we use accruals from the last quarter ( $ACCR_{q-1}$ ) and four quarters ago ( $ACCR_{q-4}$ ) to control for current operating performance. As in Fan et al. (2010), current quarter stock returns ( $RET_q$ ) and prior quarter stock returns ( $RET_{q-1}$ ) serve as additional controls for firm performance. Each firm's quarterly return is adjusted for the CRSP value-weighted market return. Consistent with prior classification shifting research, we include sales growth ( $\Delta SALE_q$ ) and allow the slope to be different between sales increases and decreases ( $NEG\_ \Delta SALE_q$ ).

The baseline test for the existence of classification shifting from prior classification shifting literature (McVay 2006; Fan et al. 2010) is as follows:

$$UE\_CE_{i,q} = \beta_0 + \beta_1 SI_{i,q} + \varepsilon_{i,q} \quad (2)$$

Recall that  $UE\_CE$  is unexpected core earnings.  $SI$  equals income-decreasing special items as a percentage of sales, multiplied by  $-1$ . Following prior studies (McVay 2006; Fan et al.

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<sup>7</sup> This definition of core earnings is consistent with the definition used in prior research on classification shifting (McVay 2006; Fan et al. 2010; among others). However, this definition may differ slightly from EBITDA in financial covenants. Important for our study, both core earnings and EBITDA exclude special items. Therefore, finding evidence of shifting core expenses to special items to improve core performance would be consistent with shifting to improve EBITDA.

2010; Fan and Liu 2015), income-*increasing* special items are set to zero. Consistent with the expense misclassification hypothesis, we expect that managers misclassify core expenses to special items so that  $UE\_CE$  increases with  $SI$  ( $\beta_1 > 0$ ).<sup>8</sup> As discussed in more detail in section V, we expand Model (2) to include EBITDA-related variables as our primary test of whether classification shifting increases with EBITDA-related covenants.

#### IV. DATA AND SAMPLE

Data are obtained for the years 1988 to 2013 from Compustat (financial statement data and closing stock price information) and Thompson Reuters DealScan (private loan contracts).<sup>9</sup> Because we require four quarters ago accrual information, computed from Compustat statement of cash flows data, the sample for hypotheses testing begins in 1989. We start with all firm-quarters in Compustat. To avoid outlier observations, we require firm-quarters to have at least \$0.25 million sales, as sales is the deflator for most of our variables constructed for measuring classification shifting.<sup>10</sup> Following prior classification shifting studies (McVay 2006; Fan et al. 2010), we require a minimum of 15 observations for each industry-year-quarter for estimating expected core earnings (Model 1). After eliminating observations with insufficient data to compute variables, the sample for measuring classification shifting consists of 386,796 firm-quarters from 4,840 industry-year-quarter groups.

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<sup>8</sup> Evidence of classification shifting is concluded based on the *relation* between unexpected core earnings and the amount of income-decreasing special items. In other words, classification shifting is not concluded based on the magnitude of unexpected core earnings or the magnitude of special items alone, but instead on their co-movement. This is unlike accrual or real activities management, for which the conclusion is based on magnitude of the residual from an expectation model. Thus, Model (2) is not confounded by the accrual or real activities management effect.

<sup>9</sup> In this study, we focus on private loan contracts because the observability of debt covenant terms is central to our conclusion. Bharath, Sunder, and Sunder (2008) document that firms with the lowest accounting quality prefer private to public debt. Therefore, the generalizability of our study's conclusion is limited to firms with private loan contracts.

<sup>10</sup> McVay (2006) and Fan et al. (2010) require sample observations to have at least \$1 million *annual* sales. Because we use *quarterly* data, we require firm-quarters to have at least \$0.25 million *quarterly* sales.



From Thompson Reuter's DealScan, we obtain 34,210 private loan contracts. We then use the Compustat-DealScan Link Table provided by Chava and Roberts (2008) to merge loan information with the classification shifting sample at the package level. Because the Compustat-DealScan Link Table is currently updated to August 2012, our loan package data ends in 2012. However, private loans are outstanding for more than a year, on average. Thus, after requiring firm-quarters to have outstanding loans for hypotheses testing, our sample ends in 2013. The first (last) quarter for a firm to be considered having a loan outstanding is the quarter immediately after (before) the loan initiation (maturity). After merging classification shifting variables calculated with Compustat data items with loan contract information, our sample is reduced to 123,583 firm-quarters. Eliminating observations with missing values of the control variables in the hypotheses tests, our final sample has 121,143 firm-quarters with outstanding loans.

Table 2 provides descriptive statistics for variables in our main analyses, with Panel A for the full sample and Panel B by whether or not the observation has at least one EBITDA-related covenant. In Panel A, the mean (median) of income-decreasing special items scaled by sales,  $SI$ , is 0.020 (0.000), indicating that special items are on average 2% of quarterly sales, consistent with prior literature (McVay 2006; Fan et al. 2010). The mean and median of unexpected core earnings,  $UE_{CE}$ , are 0.012 and 0.005.<sup>11</sup> Table 3 provides Pearson correlations of the variables used in hypotheses tests.

We provide results for estimating expected core earnings (Model 1) in Table 4. The first (second) column of results shows the mean (median) coefficient estimates of 4,840 industry-

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<sup>11</sup> Note that we estimate the expected core earnings using the maximal sample with necessary data available for calculating variables in Model (1). There are 386,796 firm-quarter observations from 4,840 industry-year-quarter groups for the estimation. However, not all of them have outstanding loan contracts. Thus, for the final sample for hypotheses testing with 121,143 firm-quarters that have outstanding loans, the mean and median for unexpected core earnings,  $UE_{CE_q}$ , are non-zero.

year-quarter regressions. Coefficient estimates are generally consistent with expectations. For example, core earnings from the last quarter ( $CE_{q-1}$ ) and four quarters ago ( $CE_{q-4}$ ) are both positively related to current quarter core earnings ( $CE_q$ ). The coefficients on  $\Delta SALE$  and  $NEG\_ \Delta SALE$  suggest that the relation between core earnings and sales growth is greater when sales are declining (Anderson et al. 2003). Both current-quarter stock return ( $RET_q$ ) and prior-quarter stock return ( $RET_{q-1}$ ) stock returns have positive coefficients and help to control for the performance effect on  $CE_q$  (Fan et al. 2010). We note that asset turnover,  $ATO$ , is statistically insignificant, which is also consistent with prior literature (e.g., McVay 2006). Finally, the mean and median R-squared of the industry-year-quarter regressions are 81.50% and 85.54%, indicating a good model fit.

## V. HYPOTHESES TESTING

### The Choice to Include a Financial Covenant in Loan Contracts

We investigate the impact of EBITDA-related covenants on classification shifting. However, the choice to include any financial covenant in private loan contracts may be endogenous. The choice to include a financial covenant could be related to both certain firm characteristics and other factors that also affect a firm's classification shifting behavior. To mitigate this concern, we adopt Heckman's two-stage procedure to control for possible selection issues. In the first stage, we estimate Model (3) below for the likelihood of including a financial covenant in loan contracts for firm-quarters with loan initiation. We obtain the inverse Mills ratio from the estimation and use it as a control variable in the second-stage regression models with which we test our hypotheses.

$$FINCOV\_YES_{i,q} = \gamma_0 + \gamma_1 SIZE_{i,t-1} + \gamma_2 BTM_{i,t-1} + \gamma_3 Z_{i,t-1} + \gamma_4 ROA_{i,t-1} + \gamma_5 LOSS_{i,t-1} + \gamma_6 LEV_{i,t-1} + \gamma_7 AGE_{i,t-1} + \gamma_8 TANG_{i,t-1} + \gamma_9 ADV_{i,t-1} \quad (3)$$

$$+ \gamma_{10}RD_{i,t-1} + \gamma_{11}DEALSIZE_{i,q} + \gamma_{12}MATURITY_{i,q} + \\ \gamma_{13}LENDFREQ_{i,q} + \gamma_{14}REVOLVER_{i,q} + \gamma_{15}SECURED_{i,q} + \nu_{i,q}$$

Model (3) is estimated at the borrower firm level as opposed to the package level, because classification shifting is a firm-level financial reporting behavior. In addition, the decision to include a financial covenant is likely based on various borrower characteristics such as size, performance, and leverage in the *year* (as opposed to in the *quarter*) prior to loan initiation. Thus, we estimate Model (3) using firm characteristics in the year prior to loan initiation, in addition to loan characteristics.

Variable definitions are provided in Table 1. In Model (3), *FINCOV\_YES* is an indicator variable that equals 1 if the loan package includes at least one financial covenant and equals 0 otherwise. The independent variables are determinants of the covenant inclusion identified in prior studies (Billett, King, and Mauer 2007; Chava and Roberts 2008; Chava, Kumar, and Warga 2010; Costello and Wittenberg-Moerman 2011; Christensen and Nikolaev 2012), which include firm and loan characteristics. In particular, *SIZE* is the size of the borrower, measured as the natural logarithm of the market value of total assets. *BTM* is the book to market ratio, a proxy for firm risk. Altman's Z-score, *Z*, is a proxy for financial distress. In addition, *ROA* is the return on assets of the borrower. *LOSS* is an indicator variable that equals 1 if the borrower has a net loss. *LEV* proxies for the borrower's leverage, computed as long-term debt divided by market value of total assets. *AGE* proxies for borrower firm age, measured as the natural logarithm of the number of years between the first year a firm appears in Compustat and the year prior to loan initiation. Furthermore, following Christensen and Nikolaev (2012), we include asset tangibility (*TANG*) as the percentage of net property, plant, and equipment in total assets, and advertising (*ADV*) and research and development (*RD*) expenses (both scaled by total revenues).

For the determinants of covenant inclusion related to loan terms, we follow prior studies and include the natural logarithm of total deal amount (*DEALSIZE*), loan maturity in terms of the number of months (*MATURITY*), lending frequency over the prior five years (*LENDFREQ*), and two indicator variables for whether a revolving facility exists in the loan package (*REVOLVER*) and for whether the loan is secured (*SECURED*). When a firm-quarter has multiple loans initiated, we obtain the average deal amount from all loan contracts initiated in the quarter. For *MATURITY*, we use the average number of months from loan initiation to maturity weighted by individual loan package's deal amount. For firm-quarters with multiple loan initiations, *REVOLVER* (*SECURED*) takes a value of 1 if at least one of the loan packages has a revolving facility (is secured), and 0 otherwise.

The results for estimating the likelihood that a financial covenant is included in loan contracts are presented in Table 4.<sup>12</sup> We obtain the inverse Mills ratio (*IMR\_FIN*) from Model (3) for firm-quarters with loan initiation. We then assign it to all firm-quarters that the loan is outstanding until a new loan is initiated (which then is assigned a new *IMR\_FIN*) for the second-stage hypotheses testing.

## **Tests of Hypothesis 1**

Our first hypothesis predicts that when lenders monitor borrowers' performance using EBITDA-related covenants, borrowing firm managers are more likely to misclassify core expense as income-decreasing special items. To test this hypothesis, we expand Model (2) and

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<sup>12</sup> Some variables in the Model (3) are correlated (e.g. *SIZE* and *AGE*, and *ROA* and *LOSS*). We try several alternative models with additional variables such as the number of lenders and relationship lending, dropping some variables in the model (e.g., *AGE* and *LOSS*), or slightly changing the definition of variables (e.g., *SIZE* and *LEV*). These alternative choice models have very little impact on our results and none of our conclusions change.

use three specifications for the importance of EBITDA-related covenants in loan contracts as follows:

$$\begin{aligned}
UE\_CE_{i,q} = & \beta_0 + \beta_1 SI_{i,q} + \beta_2 SI_{i,q} * EBITDA\_YES_{i,q} + \beta_3 EBITDA\_YES_{i,q} + \\
& \beta_4 SI_{i,q} * NON\_EBITDA\_YES_{i,q} + \beta_5 NON\_EBITDA\_YES_{i,q} + \\
& \beta_6 SI_{i,q} * MBE_{i,q} + \beta_7 MBE_{i,q} + \beta_8 SI_{i,q} * BIG4_{i,q} + \beta_9 BIG4_{i,q} + \\
& \beta_{10} SI_{i,q} * INST_{i,q} + \beta_{11} INST_{i,q} + \beta_{12} SI_{i,q} * HiNOA_{i,q-1} + \beta_{13} HiNOA_{i,q-1} + \\
& \beta_{14} SI_{i,q} * Q4_{i,q} + \beta_{15} Q4_{i,q} + \beta_{16} SI_{i,q} * IMR\_FIN_{i,q} + \beta_{17} IMR\_FIN_{i,q} + \pi_{i,q}
\end{aligned} \tag{4a}$$

$$\begin{aligned}
UE\_CE_{i,q} = & \theta_0 + \theta_1 SI_{i,q} + \theta_2 SI_{i,q} * EBITDA\_NUM_{i,q} + \theta_3 EBITDA\_NUM_{i,q} + \\
& \theta_4 SI_{i,q} * NON\_EBITDA\_YES_{i,q} + \theta_5 NON\_EBITDA\_YES_{i,q} + \\
& \theta_6 SI_{i,q} * MBE_{i,q} + \theta_7 MBE_{i,q} + \theta_8 SI_{i,q} * BIG4_{i,q} + \theta_9 BIG4_{i,q} + \\
& \theta_{10} SI_{i,q} * INST_{i,q} + \theta_{11} INST_{i,q} + \theta_{12} SI_{i,q} * HiNOA_{i,q-1} + \theta_{13} HiNOA_{i,q-1} + \\
& \theta_{14} SI_{i,q} * Q4_{i,q} + \theta_{15} Q4_{i,q} + \theta_{16} SI_{i,q} * IMR\_FIN_{i,q} + \theta_{17} IMR\_FIN_{i,q} + \nu_{i,q}
\end{aligned} \tag{4b}$$

$$\begin{aligned}
UE\_CE_{i,q} = & \varphi_0 + \varphi_1 SI_{i,q} + \varphi_2 SI_{i,q} * EBITDA\_PCT_{i,q} + \varphi_3 EBITDA\_PCT_{i,q} + \\
& \varphi_4 SI_{i,q} * MBE_{i,q} + \varphi_5 MBE_{i,q} + \varphi_6 SI_{i,q} * BIG4_{i,q} + \varphi_7 BIG4_{i,q} + \\
& \varphi_8 SI_{i,q} * INST_{i,q} + \varphi_9 INST_{i,q} + \varphi_{10} SI_{i,q} * HiNOA_{i,q-1} + \varphi_{11} HiNOA_{i,q-1} + \\
& \varphi_{12} SI_{i,q} * Q4_{i,q} + \varphi_{13} Q4_{i,q} + \varphi_{14} SI_{i,q} * IMR\_FIN_{i,q} + \varphi_{15} IMR\_FIN_{i,q} + \delta_{i,q}
\end{aligned} \tag{4c}$$

Models (4a), (4b), and (4c) are estimated with firm fixed effects. The relation between unexpected core earnings ( $UE\_CE$ ) and income-decreasing special items ( $SI$ ) is predicted in Hypothesis 1 to be more positive for firms with more EBITDA-related covenants (i.e.,  $\beta_2 > 0$ ,  $\theta_2 > 0$ , and  $\varphi_2 > 0$ ). As the extent of EBITDA-related covenants increases, borrowing firm managers' are expected to shift more core expenses to special items. This shifting results in higher unexpected core earnings and a higher amount of income-decreasing special items. Next we discuss each of the three measures of the extent of EBITDA-related covenants used to test Hypothesis 1.

First, we examine the effect of the existence of EBITDA-related covenants on firms' classification shifting behavior. In Model (4a),  $EBITDA\_YES$  is an indicator variable that equals one if the firm-quarter has at least one EBITDA-related covenant in outstanding loans; zero otherwise. EBITDA-related covenants are: (1) minimal interest coverage, (2) minimal cash

interest coverage, (3) minimal debt service coverage, (4) minimal fixed charge coverage, (5) maximal debt to EBITDA ratio, (6) maximal senior debt to EBITDA ratio, and (7) minimal EBITDA.<sup>13</sup> Note that a borrower firm-quarter may have multiple loan packages outstanding and multiple facilities in each loan package. As long as one package has an EBITDA-related covenant, we consider managers to have increased incentives for classification shifting and assign the value of one to *EBITDA\_YES*.

One potential concern for the increased classification shifting when EBITDA-related covenants are present is that firms with financial covenants in outstanding loans may, in general, be more likely to engage in core earnings management. Managers of the borrowing firms may simply wish to improve reported core profitability for reasons other than debt covenants being specifically tied to EBITDA. If this is the case, the increased classification shifting should also be observed for firm-quarters with financial covenants unrelated to EBITDA. Thus, we include *NON\_EBITDA\_YES* and its interaction with *SI* in Model (4a) to control for this possibility. *NON\_EBITDA\_YES* is an indicator variable that equals one if borrowers have at least one non-EBITDA-related financial covenant in outstanding loans; zero otherwise. Non-EBITDA-related financial covenants are: (1) maximal leverage, (2) maximal senior leverage, (3) maximal debt to tangible net worth, (4) maximal debt to equity, (5) minimal current ratio, (6) minimal quick ratio, (7) minimal net worth, and (8) minimal tangible net worth.<sup>14</sup> We do not expect *UE\_CE* and

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<sup>13</sup> Nini et al. (2012, 1720) state that “[f]inancial covenants almost always include a measure of periodic operating cash flow, such as earnings before interest, taxes, depreciation, and amortization (EBITDA).” Demerjian and Owens (2014, Appendix B) document that in the seven categories of financial covenants based on EBITDA (EBITDA-related covenants), using operating cash flows in place of EBIT or EBITDA occurs only between 1.9% and 6.8% of the time. Measuring EBITDA-related covenants with a small percentage noise should bias against finding our results, as covenants based on cash flows would not motivate managers to misclassify expenses in the income statement.

<sup>14</sup> These eight types of non-EBITDA-related financial covenants together with the seven types of EBITDA-related covenants are all categories of financial covenants available in private loan contracts based on Tearsheets (see Demerjian and Owens 2014, Table 4).

*SI\*NON\_EBITDA\_YES* to be positively related, as non-EBITDA-related financial covenants are not expected to increase managers' incentives to engage in expense classification shifting ( $\beta_4 < 0$  or  $\beta_4 = 0$ ).

Our second measure to test Hypothesis 1 is the number of EBITDA-related covenants in outstanding loans (*EBITDA\_NUM*). Managers' incentive to engage in classification shifting is expected to increase as more EBITDA-related covenants are used. For borrower firm-quarters with multiple loan packages outstanding, we add the number of EBITDA-related covenants from each package together to compute the total number of EBITDA-related covenants for the firm-quarter. Similar to Model (4a), Model (4b) includes *NON\_EBITDA\_NUM*, the number of non-EBITDA-related financial covenants in outstanding loans, and its interaction with *SI*. For borrower firm-quarters with multiple loan packages outstanding, we add the number of non-EBITDA-related financial covenants from each loan package together. We do not expect *UE\_CE* and *SI\*NON\_EBITDA\_NUM* to be positively related, as non-EBITDA-related financial covenants are not expected to increase managers' incentives to engage in classification shifting ( $\theta_4 < 0$  or  $\theta_4 = 0$ ).

Our third measure to test Hypothesis 1 is the percentage of all financial covenants that are EBITDA-related (*EBITDA\_PCT*). Similar to the argument for using the number of EBITDA-related covenants to proxy for EBITDA importance, we consider that, as the percentage increases, EBITDA becomes a more important performance metric in loan contracts. The increased importance of EBITDA will then motivate managers to a greater extent to misclassify core expenses to special items. In Model (4c), *EBITDA\_PCT* is the number of EBITDA-related covenants divided by the number of all financial covenants in outstanding loans. For borrower firm-quarters with multiple loan packages outstanding, we add the number from each package

together to compute the total number of EBITDA-related and non-EBITDA-related financial covenants for the firm-quarter.<sup>15</sup>

We note from Table 3 that *EBITDA\_YES*, *EBITDA\_NUM*, and *EBITDA\_PCT* are all positively correlated with each other, suggesting that they capture the same underlying construct – the importance of EBITDA as a performance measure used by lenders to monitor borrowers. Thus, we use these variables one at a time to proxy for increased incentives to misclassify core expenses as special items. Another observation is that *EBITDA\_YES* and *NON\_EBITDA\_YES* are highly correlated (0.529), indicating that EBITDA-related covenants often are grouped with non-EBITDA-related financial covenants. Because of this high correlation, there is a potential concern that a lack of cross-sectional variation will prevent an independent test of EBITDA-related covenants in Model (4a). We note, however, that there is much greater cross-sectional variation in *EBITDA\_NUM* and *EBITDA\_PCT*. Thus, Models (4b) and (4c) have the potential to provide stronger tests for Hypothesis 1 than does Model (4a).<sup>16</sup>

We control for a number of variables shown in prior studies to affect the degree of classification shifting. We include these variables as main effects and as interactions with *SI* in all three models. First, we control for the effect of just meeting or beating earnings targets on classification shifting (Fan et al. 2010). Specifically, *MBE* is an indicator variable that carries the value of one if the firm-quarter just meets or beats any one of the three earnings benchmarks: zero core earnings, prior period core earnings, and analyst forecasted earnings (McVay 2006;

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<sup>15</sup> We do not include *NON\_EBITDA\_PCT* in Model (4c) because this variable is perfectly negatively correlated with *EBITDA\_PCT*.  $NON\_EBITDA\_PCT = 1 - EBITDA\_PCT$ , so the two variables are mechanically related.

<sup>16</sup> In addition, Hypothesis 2 predicts that closeness to violating an EBITDA-related covenant is expected to affect managers' classification shifting. As shown in Table 3, our variable of closeness (*EBITDA\_CLOSE* defined below) is not highly correlated with the existence of non-EBITDA-related financial covenants (0.112). This cross-sectional variation also allows for a stronger test of the independent effects of EBITDA-related covenants, relative to financial covenants in general.



Fan et al. 2010; Fan and Liu 2015).<sup>17,18</sup> *MBE* equals zero otherwise. Second, we include two control variables for external monitoring. Using data from eight East Asian countries, Haw et al. (2011) find that the extent of classification shifting relates to the firm's auditor and control structure. Thus, we include *BIG4*, an indicator variable that takes the value of one if the borrower hires a Big 4 auditor; zero otherwise. Haw et al. (2011) find that classification shifting is associated with the variation in legal institution among eight East Asian countries and the control structure of firms in these countries. Because our sample observations are U.S. firms, which are not entirely comparable to Haw et al.'s (2011) sample firms and institutional background, we adopt the percentage of outstanding shares held by institutional investors (*INST*) as a control for external monitoring in addition to *BIG4*. Prior studies show that institutional ownership is associated with firms' reporting discretion (e.g., Bushee 1998; Graham, Harvey, Rajgopal 2005; Bowen, Rajgopal, and Venkatachalam 2008).

Furthermore, Fan et al. (2010) find that classification shifting is more likely to occur for firms with higher net operating assets (*HiNOA*), an indication for accrual manipulation constraint (Barton and Simko 2002). This is because firms that have optimistically reported accruals in prior periods tend to have higher net operating assets. *HiNOA* equals one if the firm-quarter has net operating assets above or equal to the median for the industry-year-quarter; 0 otherwise.<sup>19</sup>

Fan et al. (2010) also document that classification is greater in the fourth quarter. Therefore, we

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<sup>17</sup> "Just meets or beats" refers to reporting core earnings from \$0.00 to \$0.02 per share, an increase in core earnings over four quarters ago from \$0.00 to \$0.02 per share, and analyst forecast error from \$0.00 to \$0.02 per share. Analyst forecast error is I/B/E/S actual minus the last consensus analyst forecast of earnings per share.

<sup>18</sup> We choose to use one indicator variable (*MBE*) to proxy for just meeting or beating *any* of the three earnings benchmarks rather than use one indicator variable for just meeting or beating *each* of the three earnings benchmarks. This is because the latter approach significantly reduces our sample size, as many firm-quarters do not have analyst earnings forecasts.

<sup>19</sup> Net operating assets (*NOA*) is operating assets minus operating liabilities. Operating assets are calculated as total assets (*ATQ*) less cash and short-term investments (*CHEQ*). Operating liabilities are calculated as total assets (*ATQ*) less total debt (*DLTTQ*) and (*DLCQ*), less book value of common and preferred equity (*PSTKQ* and *CSTKQ*), less noncontrolling interest (*MIBTQ*).

add a fourth quarter indicator variable (*Q4*). *Q4* equals one when the reporting quarter is the firm's fourth fiscal quarter, and zero otherwise. Lastly, we include the inverse Mills ratio (*IMR\_FIN<sub>q</sub>*) obtained from Model (3) and its interaction with *SI*.<sup>20</sup>

As shown in Table 2, Panel A, the mean of *EBITDA\_YES* for the full sample is 0.612, indicating that 61.2% of the firm-quarters with outstanding loans have EBITDA-related covenants. This frequency validates the prevalence of EBITDA in loan contracts and therefore warrants the examination of earnings management activities centered on EBITDA. Another observation is that firm-quarters with outstanding loans average just over three financial covenants with two of those covenants being EBITDA-related (i.e., the mean of *EBITDA\_NUM* is 2.019 and the mean of *NON\_EBITDA\_PCT* is 1.081).

In Table 2, Panel B, we show descriptive statistics after splitting the sample into those with versus without an EBITDA-related covenant (i.e., *EBITDA\_YES* = 1 versus *EBITDA\_YES* = 0).<sup>21</sup> Firms with EBITDA-related covenants tend to have more non-EBITDA-related financial covenants. These firms also have lower unexpected core earnings and more income-decreasing special items, although the medians are close to zero. Firms with EBITDA-related covenants are slightly more likely to just meet earnings benchmarks, have higher institutional ownership, are less likely to have a Big 4 auditor, and report lower net operating assets. We control for these differences in our tests.

The results for testing Hypothesis 1 using the three alternative specifications are presented in Table 6. Results for estimating Model (4a) for *EBITDA\_YES* are presented in the

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<sup>20</sup> As a sensitivity test, we limit the sample to those firm-quarter observations that have at least one financial covenant. For this test, we model the choice to have an EBITDA-related covenant. We obtain another inverse Mills ratio from this model and insert it to the second-stage hypotheses tests. Our conclusions remain for Hypotheses 1 and 2, except for *EBITDA\_YES*, which loses statistical significance due to the lack of cross-sectional variation in the limited sample with at least one financial covenant.

<sup>21</sup> For the subsample without EBITDA-related covenants, *EBITDA\_NUM*, *EBITDA\_PCT*, and *EBITDA\_CLOSE* are zero by definition.

first column. The coefficient on  $SI*EBITDA\_YES$  provides a test of the incremental relation between  $UE\_CE$  and  $SI$  for firms with at least one EBITDA-related covenant. The coefficient is significantly positive (0.026,  $t = 2.74$ ), as predicted. Managers of firm-quarters with at least one EBITDA-related covenant in outstanding loans show more evidence of classification shifting.<sup>22</sup>

In the second column,  $EBITDA\_YES$  is replaced with  $EBITDA\_NUM$  (Model 4b). Following Hypothesis 1, as the number of EBITDA-related covenants increases, EBITDA becomes a more important performance measure in outstanding loan contracts. This would incentivize managers to engage in more core expense misclassification to improve reported EBITDA. We find support for this. In particular,  $UE\_CE$  increases with  $SI*EBITDA\_NUM$  (0.006;  $t = 4.16$ ). The positive coefficient on  $SI*EBITDA\_NUM$  suggests that for each additional EBITDA-related covenant included in loan contracts, the relation between  $UE\_CE$  and  $SI$  becomes more positive.

In the third column of Table 6, we provide test results for the effect of increased incentives to inflate EBITDA on classification shifting proxied by the percentage of EBITDA-related covenants in all financial covenants ( $EBITDA\_PCT$ ).<sup>23</sup> We again find support for Hypothesis 1.  $UE\_CE$  increases in  $SI*EBITDA\_PCT$  (0.061;  $t = 4.01$ ), suggesting that as the proportion of EBITDA-related covenants increases, borrowing firm managers are more likely to misclassify core expenses as special items.

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<sup>22</sup> Our coefficient of 0.026, or 2.6%, is comparable to McVay's (2006, 503) estimate that 2.2% of special items represent core expenses that have been shifted. For observations with  $EBITDA\_YES = 1$ , a one standard deviation increase in  $SI$  translates into misclassified core expenses of \$1.24 million per quarter (or nearly \$5 million on an annualized basis). This amount is computed as the estimated coefficient (0.026) times the standard deviation of  $SI$  (0.080) times average quarterly sales (\$598 million) for firms with  $EBITDA\_YES = 1$ . This estimate lends support to the economic significance of managerial incentives arising from loan contracts for classification shifting.

<sup>23</sup> The number of observations in column 3 is less than that in columns 1 and 2. The reason is that firm-quarters with zero financial covenants are eliminated.

In addition, we note that the interaction variables ( $SI*NON\_EBITDA\_YES$  and  $SI*NON\_EBITDA\_NUM$ ) in the first two columns are not positively associated with  $UE\_CE$  ( $-0.024$  and  $-0.008$ ). The results suggest that financial covenants not built upon EBITDA do not incentivize borrowing firm managers to engage in more core expense misclassification. The lack of evidence mitigates the concern that borrowers with any financial covenants in outstanding loans are generally more likely to classification shift. Our findings for EBITDA-related covenants are therefore not driven by the possibility that all financial covenants would motivate classification shifting. The lack of evidence is also important for demonstrating that our measure of unexpected core earnings is not somehow mechanically related to income-decreasing special items for firms with financial covenants in general.

Overall, our results in Table 6 provide support for Hypothesis 1 that, when EBITDA plays a role in monitoring borrower performance in the form of financial covenants in loan contracts, borrowing firm managers are more likely to shift core expenses to special items. Our results are robust to using the existence, the number, and the proportion of EBITDA-related covenants as a proxy for increased managerial incentives arising from loan contracts.

## **Tests of Hypothesis 2**

Our second hypothesis predicts that when EBITDA-related covenants are close to violation, managers of the borrowing firms misclassify more core expenses as special items. By improving reported EBITDA through core expense misclassification, managers may prevent their firms from violating EBITDA-related covenants. We adopt Model (5) as our primary test of this hypothesis.

$$\begin{aligned}
UE\_CE_{i,q} = & \eta_0 + \eta_1 SI_{i,q} + \eta_2 SI_{i,q} * EBITDA\_CLOSE_{i,q} + \eta_3 EBITDA\_CLOSE_{i,q} + \\
& \eta_4 SI_{i,q} * NON\_EBITDA\_CLOSE_{i,q} + \eta_5 NON\_EBITDA\_CLOSE_{i,q} + \\
& \eta_6 SI_{i,q} * MBE_{i,q} + \eta_7 MBE_{i,q} + \eta_8 SI_{i,q} * BIG4_{i,q} + \eta_9 BIG4_{i,q} + \\
& \eta_{10} SI_{i,q} * INST_{i,q} + \eta_{11} INST_{i,q} + \eta_{12} SI_{i,q} * HiNOA_{i,q-1} + \eta_{13} HiNOA_{i,q-1} + \\
& \eta_{14} SI_{i,q} * Q4_{i,q} + \eta_{15} Q4_{i,q} + \eta_{16} SI_{i,q} * IMR\_FIN_{i,q} + \eta_{17} IMR\_FIN_{i,q} + \nu_{i,q}
\end{aligned} \tag{5}$$

Model (5) is estimated with firm fixed effects. *EBITDA\_CLOSE* is an indicator variable that equals one if the firm-quarter has at least one of the seven EBITDA-related covenants close to violation. Following Franz et al. (2014), “close” to violation is defined as the actual value of the ratio being within 15% of the threshold value in loan contracts. That is, for maximal values/ratios, the actual values/ratios calculated from reported amounts are between 85% and 100% of the threshold value/ratio. For minimal values/ratios, the actual values/ratios calculated from reported amounts are between 100% and 115% of the threshold value/ratio.

*EBITDA\_CLOSE* equals zero when the firm is not close to violation. Similar to Models (4a) and (4b), we add *NON\_EBITDA\_CLOSE* and its interaction with *SI* to mitigate the concern that firms with any financial covenant close to violation are generally more likely to classification shift. *NON\_EBITDA\_CLOSE* equals one if one of the eight financial covenants unrelated to EBITDA is within 15% of the threshold value. Thus, *NON\_EBITDA\_CLOSE* equals one when actual ratios calculated from reported amounts are between 85% and 100% (100% and 115%) of the threshold value/ratio for maximum (minimum) values/ratios. *NON\_EBITDA\_CLOSE* equals zero otherwise. Other variables are as defined previously.

Although the exact definition of EBITDA-related covenants varies among loan contracts, the vast majority uses EBITDA as the denominator (numerator) for the maximum (minimum) thresholds, which increases managerial incentives to misclassify core expenses. We follow Demerjian and Owen’s (2014, Table 4) standard definitions to compute actual values of financial covenant ratios. Following the second hypothesis, managers of the firms in quarters close to the violation of EBITDA-related covenants are expected to engage more in classification shifting

( $\eta_2 > 0$ ). We do not expect classification shifting to increase when non-EBITDA-related financial covenants are close to violation ( $\eta_4 < 0$  or  $\eta_4 = 0$ ).

Results for testing Hypothesis 2 are presented in Table 7. As expected, *SI\*EBITDA\_CLOSE* relates positively to *UE\_CE* (0.031;  $t = 2.49$ ). The result indicates that when firms' EBITDA-related covenants are close to violation, managers misclassify more core expenses as special items, resulting in higher than expected core earnings and larger amount of income-decreasing special items. This coefficient is higher than that on *SI\*EBITDA\_YES* in Table 6 (0.026,  $t = 2.74$ ).

In contrast, *UE\_CE* is not positively related with *SI\*NON\_EBITDA\_CLOSE* ( $-0.066$ ;  $t = -3.69$ ). Thus, the closeness to the violation of financial covenants unrelated to EBITDA does not provide an incentive for classification shifting. This result lends additional support to Hypothesis 2 that when borrowers are close to violating EBITDA-related covenants, their managers engage to a larger extent in classification shifting.

## VI. ADDITIONAL ANALYSES

In this section, we test whether classification shifting increases based on the likely cost of covenant violation. We use two measures of the cost of violation. Our first measure is the borrowing firm's prior operating cash flows. Borrowers with limited cash flows from operations (i.e., limited internal funding) are more reliant on external funding, such as private loans that often include financial covenants. The negative consequences of violating those financial covenants likely increase for firms with limited internal funding. These firms are more likely to be forced to accept a higher cost of renegotiated debt or become more limited in their ability to

maintain or expand operations. Therefore, we expect the use of classification shifting in the presence of EBITDA-related covenants to be greater for firms with lower operating cash flows.

To provide a test of the effect of prior operating cash flows ( $OCF_{t-1}$ ), we add  $OCF_{t-1}$  and its interactions with  $EBITDA\_YES$ ,  $EBITDA\_NUM$ ,  $EBITDA\_PCT$ , and  $EBITDA\_CLOSE$  to the respective models.  $OCF$  is defined as net cash flows from operations scaled by total assets. The three-way interaction term (e.g.,  $SI*EBITDA\_YES*OCF$ ) measures the effect of prior  $OCF$  on classification shifting for those firms that have EBITDA-related covenants. We winsorize  $OCF$  at the extreme one percentile to mitigate potential outlier effects. For the 121,143 firm-quarters in our primary analyses, 115,988 have non-missing values for  $OCF$ . The mean (median) of  $OCF$  is 0.082 (0.081) for this sample. We expect firms with lower (higher) operating cash flows to engage in more (less) classification shifting.

Results shown in the first column of Table 8, Panel A, are consistent with our expectation. When outstanding loans include at least one EBITDA-related covenant, the positive relation between  $UE\_CE$  and  $SI$  becomes more positive as  $OCF$  decreases ( $-0.163$ ;  $t = -1.65$ ). The results are consistent with managers facing more pressure to classification shift to inflate reported EBITDA when their firm's cash flow position is weaker. We obtain stronger results using the number ( $-0.079$ ;  $t = -4.38$ ) and the proportion of EBITDA-related covenants ( $-0.582$ ;  $t = -3.67$ ).

In Table 8, Panel B, we show results with  $EBITDA\_CLOSE$ . The coefficient on  $SI*EBITDA\_CLOSE*OCF$  is significantly negative ( $-0.483$ ;  $t = -2.44$ ). This evidence is also consistent with the greater impact of EBITDA-related covenants on classification shifting when operating cash flows are low. In sum, our additional tests suggest that when lenders use EBITDA-related covenants to monitor borrower performance and when borrowing firms face

higher likely cost of covenant violation, incentives for classification shifting to inflate reported EBITDA increase.

Furthermore, we note that none of the coefficients on the three-way interaction of operating cash flows, *SI*, and measures of non-EBITDA-related financial covenants are significantly negative. Thus, non-EBITDA-related financial covenants do not motivate managers to engage in more classification shifting activities when operating cash flows are low. This lends additional credence that managers' classification shifting relates specifically to EBITDA-related covenants when operating cash flows are low.

Finally, we also consider stock returns as a summary measure of the firm's financial health and therefore the cost of debt covenant violation. Prior studies show that firms with lower stock returns typically have higher credit risks (Dichev 1998; Campbell et al. 2008; among others). These firms may suffer greater additional costs to renegotiate their loans. We find that firms with lower abnormal stock returns in the fiscal quarter before the release of their quarterly financial statements show more evidence of classification shifting. These (untabulated) results suggest that managers are more likely to classification shift when the costs of covenant violation are higher.

## **VII. CONCLUSION**

In this study, we examine the effects of financial covenants in private loan contracts on firms' classification shifting. Classification shifting involves managers misclassifying certain core expenses (COGS and SGA) as income-decreasing special items. The effect of such misclassification is to increase EBITDA. Thus, we expect that borrowing firm managers are



more likely to engage in classification shifting when loan contracts include EBITDA-related covenants.

Consistent with our expectations, the results show that classification shifting is more prominent (1) when loan contracts include at least one EBITDA-related covenant, (2) as the number or proportion of EBITDA-related covenants increases, and (3) when the firm is close to technical violation of at least one EBITDA-related covenant. In addition, we show that non-EBITDA-related financial covenants do not increase classification shifting, inconsistent with the possibility that firm-quarters with any type of financial covenants in outstanding loans are generally more likely to classification shift. As a final test, we find that firms with lower operating cash flows and lower quarterly abnormal stock returns are more likely to classification shift in the presence of EBITDA-related covenants and when these covenants are close to violation. These results are consistent with classification shifting being more likely when firms have a greater reliance on external funding and a higher cost of debt covenant violation.

We contribute to the literature in several ways. First, prior research investigating classification shifting generally focuses on managerial incentives from an equity market perspective, such as beating key earnings benchmarks (McVay 2006; Fan et al. 2010; Athanasakou et al. 2011; Fan and Liu 2015). Different from these studies, we explore core expense misclassification driven by credit market incentives. We use the setting of private loan contracts because private loans account for an economically significant percentage of all financing activities in the U.S. Therefore, we extend the classification shifting literature by documenting large dollar amounts of core expenses shifted to income-decreasing special items when credit market incentives are strong.

Second, prior debt contracting research has investigated the effects of financial covenants on borrowers' reporting behavior. Because lenders set covenants tightly and violations of financial covenants can be costly to borrowers, borrowing firm managers have incentives to manipulate reported accounting numbers to mislead lenders. Following this, prior studies show that managers use accruals (DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Sweeney 1994; Franz et al. 2014) and real activities manipulation (Kim et al. 2011; Franz et al. 2014) to avoid technical default and that they are more likely to do so when their firms are close to covenant violation. Both accruals and real activities management change bottom-line income. Any manipulation of current-period accruals will eventually reverse in a future period, and current-period manipulation of real activities could be costly to implement and could adversely affect future performance. In contrast, classification shifting is considered a relatively less costly tool to change users' perception. Classification shifting is not expected to lead to suboptimal real decisions, and it has no effect on bottom-line income, making this reporting behavior less likely to be detected by external monitors (e.g., auditors). The results of this study should be directly relevant to lenders and other stakeholders in the credit markets.

Relatedly, by documenting the existence of classification shifting in the loan contract setting, we provide a baseline study for future research on manager's portfolio of earnings management techniques. Prior research has been conducted on accrual versus real activities management prior to seasoned equity offerings (Cohen and Zarowin 2010), around the adoption of the Sarbanes-Oxley Act (Cohen et al. 2008), and in meeting earnings benchmarks (Zang 2012). We are not aware of any studies in the debt setting that compare the ordering of classification shifting versus the other two forms of earnings management. Examining the tradeoffs among alternative earnings management techniques when managers' credit market

incentives are strong is an interesting avenue for future research. One may also conjecture that unique monitoring mechanisms of lenders could affect managers' choice of earnings management technique.

In addition, by providing evidence of classification shifting to improve reported EBITDA and to avoid the violation of EBITDA-related covenants, we contribute to the debate on whether debt covenant violations are costly. The opportunistic reporting behavior we document indicates that managers believe classification shifting brings some benefit (or avoids some cost) when EBITDA-related debt covenants are present. For our sample period, we observe that the majority of loan contracts include EBITDA-related covenants, and these covenants account for about two-thirds of all financial covenants. The frequency of EBITDA-related covenants suggests that lenders particularly attend to borrowers' core profitability. By focusing on EBITDA, lenders incentivize managers to shift core expenses to special items.

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**Table 1.**  
**Variable Definitions with Compustat Data Mnemonics in Parentheses**

<b>Variable</b>	<b>Definition</b>
<i>Core earnings expectation model (Model 1):</i>	
$CE_q$	Core earnings in the current quarter, defined as sales (SALEQ) minus cost of goods sold (COGSQ) and general, selling and administrative expenses (XSGAQ), scaled by sales (SALEQ).
$CE_{q-1}$	Core earnings in the prior quarter.
$CE_{q-4}$	Core earnings four quarters ago.
$ATO_q$	Asset turnover, defined as sales (SALEQ) / [(NOA <sub>q</sub> + NOA <sub>q-1</sub> ) / 2], where NOA <sub>q</sub> , or net operating assets, is operating assets minus operating liabilities. Operating assets are calculated as total assets (ATQ) less cash and short-term investments (CHEQ). Operating liabilities are calculated as total assets (ATQ) less total debt (DLTTQ) and (DLCQ), less book value of common and preferred equity (PSTKQ and CSTKQ), less noncontrolling interest (MIBTQ). Average NOA is required to be positive.
$ACCR_{q-1}$	Total accruals in the prior quarter, defined as income before extraordinary items (IBQ) minus cash flows from operations, scaled by sales (SALEQ). Quarterly cash flows from operations are obtained using Compustat year-to-date data (OANCFY) adjusted for individual quarters.
$ACCR_{q-4}$	Total accruals four quarters ago.
$\Delta SALE_q$	Change in sales, defined as sales (SALEQ) in current quarter $q$ minus sales in quarter $q-4$ , divided by sales in quarter $q-4$ .
$NEG\_ \Delta SALE_q$	$\Delta SALE_q$ if the change in quarterly sales is less than 0, and 0 otherwise.
$RET_q$	Market-adjusted return in the current quarter, defined as the three-month return during quarter $q$ , adjusted for the CRSP value-weighted market return.
$RET_{q-1}$	Market-adjusted return in the prior quarter.
<i>Classification shifting model (Model 2):</i>	
$UE\_CE_q$	Unexpected core earnings for quarter $q$ , defined as the residual from Model (1), estimated by industry-year-quarter.
$SI_q$	Special items, defined as special items (SPIQ) scaled by sales (SALEQ). Income-decreasing special items are multiplied by $-1$ . Income-increasing special items are set to zero.

(Table 1 continued on next page)



**Table 1. (continued)**  
**Variable Definitions with Compustat Data Mnemonics in Parentheses**

<b>Variable</b>	<b>Definition</b>
<i>First-stage model of the choice to have a financial covenant (Model 3):</i>	
<i>FINCOV_YES<sub>q</sub></i>	Indicator variable that equals 1 if the firm initiates in quarter <i>q</i> a loan contract that includes at least one financial covenant; 0 otherwise.
<i>SIZE<sub>t-1</sub></i>	Firm size, measured as the natural logarithm of the market value of total assets ( $\ln(AT - SEQ + PRCC\_F * CSHO)$ ).
<i>BTM<sub>t-1</sub></i>	Book to market ratio ( $SEQ / (PRCC\_F * CSHO)$ ).
<i>Z<sub>t-1</sub></i>	Altman's credit risk score, computed as $1.2 * (\text{current assets} - \text{current liabilities}) / \text{total assets} + 1.4 * \text{retained earnings} / \text{total assets} + 3.3 * \text{pretax income} / \text{total assets} + 0.6 * \text{market capitalization} / \text{total liabilities} + 0.999 * \text{revenue} / \text{total assets}$ ( $1.2 * (ACT - LCT) / AT + 1.4 * RE / AT + 3.3 * PI / AT + 0.6 * PRCC\_F * CSHO / LT + 0.999 * REVT / AT$ ).
<i>ROA<sub>t-1</sub></i>	Return on assets, defined as income before extraordinary items (IB) divided by total assets (AT).
<i>LOSS<sub>t-1</sub></i>	An indicator variable that equals 1 if the firm has a net loss ( $NI < 0$ ); 0 otherwise.
<i>LEV<sub>t-1</sub></i>	Firm leverage, measured as long-term debt (DLTT) divided by the market value of total assets ( $AT - SEQ + PRCC\_F * CSHO$ ).
<i>AGE<sub>t-1</sub></i>	Firm age, measured as the natural logarithm of the number of years between the first year the firm appears in Compustat and the year before loan initiation.
<i>TANG<sub>t-1</sub></i>	Asset tangibility, measured as the ratio of net value of property, plant, and equipment (PPENT) to total assets (AT).
<i>ADV<sub>t-1</sub></i>	Advertising expense (XAD) divided by total revenues (REVT). Observations with missing values are set to 0.
<i>RD<sub>t-1</sub></i>	Research and development expense (XRD) divided by total revenues (REVT). Observations with missing values are set to 0.
<i>DEALSIZE<sub>q</sub></i>	Natural logarithm of the deal amount (all facilities included). When multiple loans are initiated in the quarter, <i>DEALSIZE</i> is the natural logarithm of the average deal amount.
<i>MATURITY<sub>q</sub></i>	The number of months to loan maturity. When multiple loans are initiated in the quarter, <i>MATURITY</i> is the average number of months weighted by the deal amount of each loan package.
<i>LENDFREQ<sub>q</sub></i>	Lending frequency computed as the number of loan deals a company has had over the prior five years.
<i>REVOLVER<sub>q</sub></i>	An indicator variable that equals 1 if a revolving facility exists in the loan package; 0 otherwise.
<i>SECURED<sub>t</sub></i>	An indicator variable that equals 1 if the loan is secured; 0 otherwise.

(Table 1 continued on next page)

**Table 1. (Continued)**  
**Variable Definitions with Compustat Data Mnemonics in Parentheses**

<b>Variable</b>	<b>Definition</b>
<i>Variables added to the classification shifting model to test Hypotheses (Model 4 and Model 5):</i>	
<i>EBITDA_YES<sub>q</sub></i>	Indicator variable that equals 1 if the firm-quarter has at least one EBITDA-related covenant in outstanding loans; 0 otherwise. EBITDA-related covenants include: 1) minimal interest coverage, 2) minimal cash interest coverage, 3) minimal debt service coverage, 4) minimal fixed charge coverage, 5) maximal debt to EBITDA ratio, 6) maximal senior debt to EBITDA ratio, and 7) minimal EBITDA.
<i>EBITDA_NUM<sub>q</sub></i>	The number of EBITDA-related covenants in all outstanding loan packages.
<i>EBITDA_PCT<sub>q</sub></i>	The number of EBITDA-related covenants divided by the number of all financial covenants in all outstanding loan packages.
<i>EBITDA_CLOSE<sub>q</sub></i>	Indicator variable that equals 1 if the firm-quarter has at least one EBITDA-related covenant close to violation. For maximum (minimum) values/ratios, the actual value/ratios calculated from reported amounts are between 85% and 100% (100% and 115%) of the threshold values/ratios. <i>EBITDA_CLOSE<sub>q</sub></i> equals 0 otherwise.
<i>NON_EBITDA_YES<sub>q</sub></i>	Indicator variable that equals 1 if the firm-quarter has at least one non-EBITDA-related financial covenant in outstanding loans; 0 otherwise. Non-EBITDA-related financial covenants are: 1) maximal leverage, 2) maximal senior leverage, 3) maximal debt to tangible net worth, 4) maximal debt to equity, 5) minimal current ratio, 6) minimal quick ratio, 7) minimal net worth, and 8) minimal tangible net worth.
<i>NON_EBITDA_NUM<sub>q</sub></i>	The number of non-EBITDA-related financial covenants in all outstanding loan packages.
<i>NON_EBITDA_CLOSE<sub>q</sub></i>	Indicator variable that equals 1 if the firm-quarter has at least one non-EBITDA-related financial covenant close to violation. <i>NON_EBITDA_CLOSE<sub>q</sub></i> is 0 otherwise.
<i>MBE<sub>q</sub></i>	An indicator variable that equals 1 if the firm-quarter just meets or beats any one of the three earnings benchmarks: zero core earnings ( <i>CE<sub>q</sub></i> ), core earnings of four quarters ago ( <i>CE<sub>q-4</sub></i> ), and analyst forecasted earnings. <i>MBE<sub>q</sub></i> equals 0 otherwise. Analyst earnings forecasts are obtained from I/B/E/S. “Just meets or beats” refers to reporting core earnings from \$0.00 to \$0.02 per share, an increase in core earnings over four quarters ago from \$0.00 to \$0.02 per share, and analyst forecast error from \$0.00 to \$0.02 per share.
<i>BIG4<sub>q</sub></i>	An indicator variable that equals 1 if the borrower hires a Big 4 auditor; 0 otherwise.
<i>INST<sub>q</sub></i>	The percentage of outstanding shares held by institutional investors. Institutional ownership information is obtained through Thompson Reuter’s 13-F filings database.
<i>HiNOA<sub>q-1</sub></i>	An indicator variable that equals 1 if <i>NOA<sub>q-1</sub></i> is above or equal to the median for the industry-year-quarter; 0 otherwise.
<i>Q4<sub>q</sub></i>	An indicator variable that equals 1 for the fourth fiscal quarter; 0 otherwise.
<i>IMR<sub>q</sub></i>	Inverse Mills ratio from the first stage choice model to have a financial covenant (Model 3).

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**Table 2. Descriptive Statistics of Variables in Hypotheses Tests**

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**Panel A. Full Sample (N = 121,143)**

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>25%</b>	<b>75%</b>
<i>EBITDA_YES<sub>q</sub></i>	0.612	1.000	0.487	0.000	1.000
<i>EBITDA_NUM<sub>q</sub></i>	2.019	1.000	2.512	0.000	3.000
<i>EBITDA_PCT<sub>q</sub></i>	0.627	0.667	0.306	0.500	1.000
<i>EBITDA_CLOSE<sub>q</sub></i>	0.075	0.000	0.264	0.000	0.000
<i>NON_EBITDA_YES<sub>q</sub></i>	0.506	1.000	0.500	0.000	1.000
<i>NON_EBITDA_NUM<sub>q</sub></i>	1.081	1.000	1.410	0.000	2.000
<i>NON_EBITDA_CLOSE<sub>q</sub></i>	0.037	0.000	0.190	0.000	0.000
<i>UE_CE<sub>q</sub></i>	0.012	0.005	0.097	-0.026	0.043
<i>SI<sub>q</sub></i>	0.020	0.000	0.077	0.000	0.003
<i>MBE<sub>q</sub></i>	0.154	0.000	0.361	0.000	0.000
<i>BIG4<sub>q</sub></i>	0.919	1.000	0.272	0.000	1.000
<i>INST<sub>q</sub></i>	0.416	0.430	0.341	0.004	0.718
<i>HiNOA<sub>q-1</sub></i>	0.511	1.000	0.500	0.000	1.000
<i>Q4<sub>q</sub></i>	0.257	0.000	0.437	0.000	1.000

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(Table 2 continued on the next page)

**Table 2. (Continued)**  
**Descriptive Statistics of Variables in Hypotheses Tests**

**Panel B. Subsample of Firm-Quarters With (N = 74,127) and Without (N = 47,016) an EBITDA-related Covenant**

<u>Variable</u>	<u>With EBITDA Covenant</u>				<u>Without EBITDA Covenant</u>				<u>Mean difference</u>	<u>Median difference</u>
	<u>Mean</u>	<u>Median</u>	<u>25%</u>	<u>75%</u>	<u>Mean</u>	<u>Median</u>	<u>25%</u>	<u>75%</u>		
<i>EBITDA_YES<sub>q</sub></i>	1.000	1.000	1.000	1.000						
<i>EBITDA_NUM<sub>q</sub></i>	3.299	2.000	2.000	4.000						
<i>EBITDA_PCT<sub>q</sub></i>	0.696	0.667	0.500	1.000						
<i>EBITDA_CLOSE<sub>q</sub></i>	0.122	0.000	0.000	0.000						
<i>NON_EBITDA_YES<sub>q</sub></i>	0.716	1.000	0.000	1.000	0.174	0.000	0.000	0.000	0.542***	1.000***
<i>NON_EBITDA_NUM<sub>q</sub></i>	1.552	1.000	0.000	2.000	0.338	0.000	0.000	0.000	1.214***	1.000***
<i>NON_EBITDA_CLOSE<sub>q</sub></i>	0.055	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.045***	0.000***
<i>UE_CE<sub>q</sub></i>	0.011	0.004	-0.027	0.043	0.013	0.005	-0.025	0.044	-0.002***	-0.001***
<i>SI<sub>q</sub></i>	0.022	0.000	0.000	0.005	0.017	0.000	0.000	0.000	0.005***	0.000***
<i>MBE<sub>q</sub></i>	0.163	0.000	0.000	0.000	0.141	0.000	0.000	0.000	0.022***	0.021***
<i>BIG4<sub>q</sub></i>	0.901	1.000	1.000	1.000	0.948	1.000	1.000	1.000	-0.047***	0.000***
<i>INST<sub>q</sub></i>	0.455	0.489	0.047	0.772	0.353	0.348	0.000	0.630	0.102***	0.141***
<i>HiNOA<sub>q-1</sub></i>	0.474	0.000	0.000	1.000	0.569	1.000	0.000	1.000	-0.095***	-1.000***
<i>Q4<sub>q</sub></i>	0.258	0.000	0.000	1.000	0.255	0.000	0.000	1.000	0.003	0.002

Variable definitions are in Table 1. All continuous variables are winsorized at the top and bottom one percentile. In Panel A, the full sample contains 121,143 firm-quarter observations, except for *EBITDA\_PCT<sub>q</sub>*, which has 82,302 observations. The reduction is due to missing value of firm-quarters without a financial covenant, which is the denominator for calculating *EBITDA\_PCT<sub>q</sub>*. Similarly, for the subsample without an EBITDA-related covenant, *EBITDA\_PCT<sub>q</sub>* has 8,175 firm-quarter observations, less than the 47,016 observations for all other variables, because many firm-quarters in this subsample do not have any financial covenants. \*\*\* indicates significance at the 0.01 level.

**Table 3.**  
**Pearson Correlations of Variables in Hypotheses Tests**

		A	B	C	D	E	F	G
<i>EBITDA_YES<sub>q</sub></i>	A	1						
<i>EBITDA_NUM<sub>q</sub></i>	B	0.640***	1					
<i>EBITDA_PCT<sub>q</sub></i>	C	0.680***	0.460***	1				
<i>EBITDA_CLOSE<sub>q</sub></i>	D	0.223***	0.286***	0.144***	1			
<i>NON_EBITDA_YES<sub>q</sub></i>	E	0.529***	0.347***	-0.715***	0.112***	1		
<i>NON_EBITDA_NUM<sub>q</sub></i>	F	0.419***	0.422***	-0.562***	0.100***	0.758***	1	
<i>NON_EBITDA_CLOSE<sub>q</sub></i>	G	0.114***	0.054***	-0.130***	0.040***	0.186***	0.219***	1
<i>UE_CE<sub>q</sub></i>	H	-0.010***	-0.013***	-0.008**	-0.014***	-0.007**	-0.008***	-0.006**
<i>SI<sub>q</sub></i>	I	0.032***	0.052***	0.032***	0.015***	0.014***	0.013***	0.004
<i>MBE<sub>q</sub></i>	J	0.030***	0.010***	0.001	0.005*	0.028***	0.016***	0.005*
<i>BIG4<sub>q</sub></i>	K	-0.085***	-0.024***	-0.003	-0.014***	-0.070***	-0.036***	-0.016***
<i>INST<sub>q</sub></i>	L	0.146***	0.122***	0.068***	0.004	0.084***	0.062***	-0.032***
<i>HiNOA<sub>q-1</sub></i>	M	-0.093***	0.021***	0.053***	0.021***	-0.107***	-0.063***	-0.051***
<i>Q4<sub>q</sub></i>	N	0.004	0.002	0.000	0.001	0.004	0.002	0.004
		H	I	J	K	L	M	N
<i>UE_CE<sub>q</sub></i>	H	1						
<i>SI<sub>q</sub></i>	I	-0.007**	1					
<i>MBE<sub>q</sub></i>	J	-0.008***	-0.002	1				
<i>BIG4<sub>q</sub></i>	K	-0.004	0.013***	-0.023***	1			
<i>INST<sub>q</sub></i>	L	-0.042***	-0.002	0.085***	0.111***	1		
<i>HiNOA<sub>q-1</sub></i>	M	0.011***	0.043***	-0.037***	0.202***	0.095***	1	
<i>Q4<sub>q</sub></i>	N	0.128***	0.037***	-0.011***	0.004	0.002	-0.002	1

Variable definitions are in Table 1. All continuous variables are winsorized at the top and bottom one percentile. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 level, respectively.

**Table 4.**  
**Model of Expected Core earnings**

<u>Dependent Variable = <math>CE_q</math></u>	<u>Mean Coefficient</u>	<u>Median Coefficient</u>
$CE_{q-1}$	0.424*** ( $< 0.01$ )	0.395*** ( $< 0.01$ )
$CE_{q-4}$	0.388*** ( $< 0.01$ )	0.337*** ( $< 0.01$ )
$ATO_q$	0.000 (0.471)	0.000 (0.111)
$ACCR_{q-1}$	-0.020*** ( $< 0.01$ )	-0.016*** ( $< 0.01$ )
$ACCR_{q-4}$	-0.016*** ( $< 0.01$ )	-0.013*** ( $< 0.01$ )
$\Delta SALE_q$	0.064* (0.078)	0.027*** ( $< 0.01$ )
$NEG\_ \Delta SALE_q$	0.299*** ( $< 0.01$ )	0.209*** ( $< 0.01$ )
$RET_q$	0.030*** ( $< 0.01$ )	0.020*** ( $< 0.01$ )
$RET_{q-1}$	0.016*** ( $< 0.01$ )	0.011*** ( $< 0.01$ )
Intercept	0.028*** ( $< 0.01$ )	0.021*** ( $< 0.01$ )
Adjusted R <sup>2</sup>	81.50%	85.54%

Variable definitions are in Table 1. Continuous variables are winsorized at the top and bottom one percentile. Amounts reported are the mean and median coefficients of 4,840 industry-year-quarter regressions. Two-tailed p-values in parentheses are computed using mean and median coefficients. \*, \*\*, and \*\*\* indicate significant at the 0.10, 0.05, and 0.01 level using a two-tailed test, respectively.

**Table 5.**  
**The Choice to Include a Financial Covenants in Loan Contracts**

<u>Dependent Variable =</u> <u><i>FINCOV YES<sub>q</sub></i></u>	<u>Coefficient</u>	<u>Standard Error</u>	<u>Wald Chi-Square</u>	<u>P-value</u>
<i>SIZE<sub>t-1</sub></i>	-0.132	0.008	263.53	< 0.01
<i>BTM<sub>t-1</sub></i>	-0.036	0.013	7.60	0.01
<i>Z<sub>t-1</sub></i>	0.042	0.004	117.97	< 0.01
<i>ROA<sub>t-1</sub></i>	0.198	0.144	1.89	0.17
<i>LOSS<sub>t-1</sub></i>	-0.014	0.029	0.25	0.62
<i>LEV<sub>t-1</sub></i>	-0.407	0.066	37.79	< 0.01
<i>AGE<sub>t-1</sub></i>	0.104	0.009	123.80	< 0.01
<i>TANG<sub>t-1</sub></i>	-0.132	0.036	13.70	0.00
<i>ADV<sub>t-1</sub></i>	-1.843	0.379	23.65	< 0.01
<i>RD<sub>t-1</sub></i>	-0.504	0.244	4.25	0.04
<i>DEALSIZE<sub>q</sub></i>	0.163	0.010	282.09	< 0.01
<i>MATURITY<sub>q</sub></i>	-0.003	0.000	52.01	< 0.01
<i>LENDFREQ<sub>q</sub></i>	0.031	0.004	49.76	< 0.01
<i>REVOVLER<sub>q</sub></i>	0.438	0.024	338.47	< 0.01
<i>SECURED<sub>q</sub></i>	0.820	0.020	1,716.37	< 0.01
Intercept	-2.907	0.144	406.04	< 0.01
No. of Observations			24,183	
Pseudo R <sup>2</sup>			11.76%	

Variable definitions are in Table 1. Continuous variables are winsorized at the top and bottom one percentile. \*, \*\*, and \*\*\* indicate significant at the 0.10, 0.05, and 0.01 level using a two-tailed test, respectively.

**Table 6.**  
**The Effect of EBITDA-Related Covenants on Classification Shifting (Hypothesis 1)**

	(1) <i>UE_CE<sub>q</sub></i>	(2) <i>UE_CE<sub>q</sub></i>	(3) <i>UE_CE<sub>q</sub></i>
<i>SI<sub>q</sub></i>	-0.091*** (-6.23)	-0.094*** (-7.16)	-0.125*** (-7.49)
<i>SI<sub>q</sub>*EBITDA_YES<sub>q</sub></i>	<b>0.026***</b> <b>(2.74)</b>		
<i>EBITDA_YES<sub>q</sub></i>	0.003*** (2.90)		
<i>SI<sub>q</sub>*NON_EBITDA_YES<sub>q</sub></i>	-0.024*** (-2.73)		
<i>NON_EBITDA_YES<sub>q</sub></i>	0.002** (1.97)		
<i>SI<sub>q</sub>*EBITDA_NUM<sub>q</sub></i>		<b>0.006***</b> <b>(4.16)</b>	
<i>EBITDA_NUM<sub>q</sub></i>		0.000 (0.97)	
<i>SI<sub>q</sub>*NON_EBITDA_NUM<sub>q</sub></i>		-0.008*** (-2.82)	
<i>NON_EBITDA_NUM<sub>q</sub></i>		0.001** (2.37)	
<i>SI<sub>q</sub>*EBITDA_PCT<sub>q</sub></i>			<b>0.061***</b> <b>(4.01)</b>
<i>EBITDA_PCT<sub>q</sub></i>			-0.001 (-0.43)
<i>SI<sub>q</sub>*MBE<sub>q</sub></i>	0.041*** (4.02)	0.042*** (4.08)	0.039*** (3.23)
<i>MBE<sub>q</sub></i>	0.000 (0.37)	0.000 (0.38)	-0.000 (-0.09)
<i>SI<sub>q</sub>*BIG4<sub>q</sub></i>	-0.005 (-0.56)	-0.004 (-0.48)	-0.005 (-0.59)
<i>BIG4<sub>q</sub></i>	-0.004*** (-3.02)	-0.004*** (-3.28)	-0.002 (-1.51)
<i>SI<sub>q</sub>*INST<sub>q</sub></i>	0.018 (1.63)	0.018* (1.65)	0.016 (1.28)
<i>INST<sub>q</sub></i>	-0.005*** (-3.09)	-0.004*** (-2.61)	-0.005** (-2.43)
<i>SI<sub>q</sub>*HiNOA<sub>q-1</sub></i>	0.001 (0.08)	0.000 (0.05)	0.000 (-0.04)
<i>HiNOA<sub>q-1</sub></i>	0.002* (1.89)	0.002* (1.90)	0.000 (0.25)

(Table 6 continued on next page)



**Table 6. (Continued)**  
**The Effect of EBITDA-Related Covenants on Classification Shifting (Hypothesis 1)**

	(1)	(2)	(3)
	<i>UE_CE<sub>q</sub></i>	<i>UE_CE<sub>q</sub></i>	<i>UE_CE<sub>q</sub></i>
<i>SI<sub>q</sub>*Q4<sub>q</sub></i>	0.024*** (3.39)	0.025*** (3.43)	0.018** (2.10)
<i>Q4<sub>q</sub></i>	0.008*** (11.91)	0.008*** (11.93)	0.008*** (9.71)
<i>SI<sub>q</sub>*IMR_FIN<sub>q</sub></i>	0.067*** (5.27)	0.069*** (5.57)	0.072*** (4.78)
<i>IMR_FIN<sub>q</sub></i>	0.004** (2.53)	0.003** (2.04)	0.005** (2.46)
Intercept	Included	Included	Included
Firm fixed effects	Included	Included	Included
No. of observations	121,143	121,143	82,302
Adjusted R <sup>2</sup>	12.69%	12.69%	13.45%

Variable definitions are in Table 1. All continuous variables are winsorized at the top and bottom one percentile. Reported values are coefficient estimates (with t-values in parentheses). \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test.

**Table 7.**  
**The Effect of EBITDA-Related Covenants Close to Violation on Classification Shifting**  
**(Hypothesis 2)**

	(1) <u>UE_CE<sub>q</sub></u>
<i>SI<sub>q</sub></i>	-0.088*** (-7.34)
<i>SI<sub>q</sub>*EBITDA_CLOSE<sub>q</sub></i>	<b>0.031**</b> <b>(2.49)</b>
<i>EBITDA_CLOSE<sub>q</sub></i>	-0.003** (-2.18)
<i>SI<sub>q</sub>*NON_EBITDA_CLOSE<sub>q</sub></i>	-0.066*** (-3.69)
<i>NON_EBITDA_CLOSE<sub>q</sub></i>	-0.002 (-1.37)
<i>SI<sub>q</sub>*MBE<sub>q</sub></i>	0.040*** (3.89)
<i>MBE<sub>q</sub></i>	0.000 (0.45)
<i>SI<sub>q</sub>*BIG4<sub>q</sub></i>	-0.003 (-0.33)
<i>BIG4<sub>q</sub></i>	-0.004*** (-3.42)
<i>SI<sub>q</sub>*INST<sub>q</sub></i>	0.020* (1.81)
<i>INST<sub>q</sub></i>	-0.004** (-2.33)
<i>SI<sub>q</sub>*HiNOA<sub>q-1</sub></i>	0.002 (0.22)
<i>HiNOA<sub>q-1</sub></i>	0.002** (2.15)
<i>SI<sub>q</sub>*Q4<sub>q</sub></i>	0.025*** (3.43)
<i>Q4<sub>q</sub></i>	0.008*** (11.92)
<i>SI<sub>q</sub>*IMR_FIN<sub>q</sub></i>	0.067*** (5.50)
<i>IMR_FIN<sub>q</sub></i>	0.002 (1.48)
Intercept	Included
Firm fixed effects	Included
No. of observations	121,143
Adjusted R <sup>2</sup>	12.68%

Variable definitions are in Table 1. All continuous variables are winsorized at the top and bottom one percentile. Reported values are coefficient estimates (with t-values in parentheses). \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test.

**Table 8.**  
**The Joint Effects of Prior Operating Cash Flows and EBITDA-Related Covenants on Classification Shifting**

**Panel A: The Joint Effects of Prior Operating Cash Flows and EBITDA-Related Covenants on Classification Shifting**

	(1) <i>UE_CE<sub>q</sub></i>	(2) <i>UE_CE<sub>q</sub></i>	(3) <i>UE_CE<sub>q</sub></i>
<i>SI<sub>q</sub></i>	-0.081*** (-4.57)	-0.083*** (-5.11)	-0.121*** (-6.01)
<i>SI<sub>q</sub>*EBITDA_YES<sub>q</sub></i>	0.032*** (2.92)		
<i>SI<sub>q</sub>*EBITDA_YES<sub>q</sub>*OCF<sub>t-1</sub></i>	<b>-0.163*</b> <b>(-1.65)</b>		
<i>EBITDA_YES<sub>q</sub>*OCF<sub>t-1</sub></i>	-0.035*** (-3.18)		
<i>EBITDA_YES<sub>q</sub></i>	0.007*** (4.53)		
<i>SI<sub>q</sub>*NON_EBITDA_YES<sub>q</sub></i>	-0.028*** (-2.72)		
<i>SI<sub>q</sub>*NON_EBITDA_YES<sub>q</sub>*OCF<sub>t-1</sub></i>	0.114 (1.17)		
<i>NON_EBITDA_YES<sub>q</sub>*OCF<sub>t-1</sub></i>	0.039*** (3.62)		
<i>NON_EBITDA_YES<sub>q</sub></i>	-0.002 (-1.21)		
<i>SI<sub>q</sub>*EBITDA_NUM<sub>q</sub></i>		0.010*** (5.90)	
<i>SI<sub>q</sub>*EBITDA_NUM<sub>q</sub>*OCF<sub>t-1</sub></i>		<b>-0.079***</b> <b>(-4.38)</b>	
<i>EBITDA_NUM<sub>q</sub>*OCF<sub>t-1</sub></i>		0.001 (0.59)	
<i>EBITDA_NUM<sub>q</sub></i>		0.000 (0.54)	
<i>SI<sub>q</sub>*NON_EBITDA_NUM<sub>q</sub></i>		-0.015*** (-4.18)	
<i>SI<sub>q</sub>*NON_EBITDA_NUM<sub>q</sub>*OCF<sub>t-1</sub></i>		0.107*** (3.21)	
<i>NON_EBITDA_NUM<sub>q</sub>*OCF<sub>t-1</sub></i>		-0.001 (-0.45)	
<i>NON_EBITDA_NUM<sub>q</sub></i>		0.001** (2.09)	

(Table 8 continued on next page)

**Table 8. (Continued).**  
**The Joint Effects of Prior Operating Cash Flows and EBITDA-Related Covenants on Classification Shifting**

	(1) <i>UE_CE<sub>q</sub></i>	(2) <i>UE_CE<sub>q</sub></i>	(3) <i>UE_CE<sub>q</sub></i>
<i>SI<sub>q</sub>*EBITDA_PCT<sub>q</sub></i>			0.088*** (5.08)
<i>SI<sub>q</sub>*EBITDA_PCT<sub>q</sub>*OCF<sub>t-1</sub></i>			-0.582*** (-3.67)
<i>EBITDA_PCT<sub>q</sub>*OCF<sub>t-1</sub></i>			-0.043** (-2.20)
<i>EBITDA_PCT<sub>q</sub></i>			0.003 (1.00)
<i>SI<sub>q</sub>*OCF<sub>t-1</sub></i>	0.140** (1.99)	0.142** (2.39)	0.406*** (3.81)
<i>OCF<sub>t-1</sub></i>	0.017** (2.18)	0.017** (2.46)	0.047*** (3.65)
<i>SI<sub>q</sub>*MBE<sub>q</sub></i>	0.041*** (3.94)	0.041*** (3.99)	0.037*** (3.09)
<i>MBE<sub>q</sub></i>	0.000 (0.34)	0.000 (0.37)	-0.000 (-0.09)
<i>SI<sub>q</sub>*BIG4<sub>q</sub></i>	-0.019 (-1.49)	-0.020 (-1.54)	-0.027* (-1.92)
<i>BIG4<sub>q</sub></i>	-0.001 (-0.57)	-0.001 (-0.72)	-0.003 (-1.22)
<i>SI<sub>q</sub>*INST<sub>q</sub></i>	0.013 (1.19)	0.014 (1.25)	0.015 (1.16)
<i>INST<sub>q</sub></i>	-0.005*** (-2.99)	-0.004** (-2.52)	-0.005** (-2.54)
<i>SI<sub>q</sub>*HiNOA<sub>q-1</sub></i>	0.000 (0.04)	-0.001 (-0.09)	0.000 (0.02)
<i>HiNOA<sub>q-1</sub></i>	0.002** (2.12)	0.002** (2.17)	0.001 (0.50)
<i>SI<sub>q</sub>*Q4</i>	0.024*** (3.29)	0.023*** (3.16)	0.016* (1.94)
<i>Q4</i>	0.008*** (11.88)	0.008*** (11.91)	0.008*** (9.72)
<i>SI<sub>q</sub>*IMR_FIN<sub>q</sub></i>	0.067*** (5.31)	0.070*** (5.59)	0.073*** (4.83)
<i>IMR_FIN<sub>q</sub></i>	0.004** (2.51)	0.003** (2.02)	0.005** (2.45)
Intercept	Included	Included	Included
Firm fixed effects	Included	Included	Included
No. of observations	115,988	115,988	79,135
Adjusted R <sup>2</sup>	12.71%	12.71%	13.43%

(Table 8 continued on next page)

**Table 8. (Continued)**  
**The Joint Effects of Prior Operating Cash Flows and EBITDA-Related Covenants on Classification Shifting**

**Panel B: The Joint Effects of Prior Operating Cash Flows and EBITDA-Related Covenants Close to Violation on Classification Shifting**

	(1)
	<u>UE</u> <u>CE<sub>q</sub></u>
$SI_q$	-0.078*** (-5.15)
$SI_q * EBITDA\_CLOSE_q$	0.062*** (3.34)
$SI_q * EBITDA\_CLOSE_q * OCF_{t-1}$	<b>-0.483**</b> <b>(-2.44)</b>
$EBITDA\_CLOSE_q * OCF_{t-1}$	0.020 (1.10)
$EBITDA\_CLOSE_q$	-0.004** (-2.16)
$SI_q * NON\_EBITDA\_CLOSE_q$	-0.083*** (-3.77)
$SI_q * NON\_EBITDA\_CLOSE_q * OCF_{t-1}$	0.285 (1.42)
$NON\_EBITDA\_CLOSE_q * OCF_{t-1}$	-0.005 (-0.51)
$NON\_EBITDA\_CLOSE_q$	-0.002 (-0.89)
$SI_q * OCF_{t-1}$	0.125*** (2.75)
$OCF_{t-1}$	0.015*** (2.99)
$SI_q * MBE_q$	0.039*** (3.81)
$MBE_q$	0.000 (0.46)
$SI_q * BIG4_q$	-0.017 (-1.37)
$BIG4_q$	-0.001 (-0.67)
$SI_q * INST_q$	0.013 (1.19)
$INST_q$	-0.003** (-2.17)
$SI_q * HiNOA_{q-1}$	0.002 (0.19)
$HiNOA_{q-1}$	0.003** (2.42)

(Table 8 continued on next page)

**Table 8. (Continued)**  
**The Joint Effects of Prior Operating Cash Flows and EBITDA-Related Covenants on Classification Shifting**

	(1) <u>UE_CE<sub>q</sub></u>
<i>SI<sub>q</sub>*Q<sub>4q</sub></i>	0.024*** (3.31)
<i>Q<sub>4q</sub></i>	0.008*** (11.87)
<i>SI<sub>q</sub>*IMR_FIN<sub>q</sub></i>	0.068*** (5.55)
<i>IMR_FIN<sub>q</sub></i>	0.002 (1.42)
Intercept	Included
Firm fixed effects	Included
No. of observations	115,988
Adjusted R <sup>2</sup>	12.70%

Variable definitions are in Table 1. All continuous variables are winsorized at the top and bottom one percentile. Reported values are coefficient estimates (with t-values in parentheses). \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using a two-tailed test.